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AUTHOR Anderson, Roberta T.
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ABSTRACT

The study included the design and analysis of a teacher education simulation games to teach a typology of small group member roles and compare its cognitive effect with a lecture containing the same information. To analyze each teacher education student's performance in the simulation game, lecture and subsequent tests, both cognitive and affective, several hypotheses were postulated and oppropriate data collecting instruments designed. Statistical analysis revealed that the simulation game, CHARGE, was more effective than the lecture in teaching group member roles to prospective teachers. Thus CHARGE offers a viable contrast to passive methods of teacher preparation. (Author)

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CHARGE - A Simulation Game Designed To Teach Group Member Roles To Prospective Teachers - FOUND TO BE EFFECTIVE (EVA)

DR. ROBERTA T. ANDERSON

Center for Advanced Studies in Education

National College of Education

Naperville, Illinois

The study includes the design and analysis of a teacher education simulation game to teach a typology of small group member roles and compare its cognitive effect with a lecture containing the same information.

To analyze each teacher education student's performance in the simulation game, lecture and subsequent tests, both cognitive and affective, several hypotheses were postulated and appropriate data collecting instruments designed. Statistical analysis revealed that the simulation game, CHARGE, was more effective than the lecture in teaching group member roles to prospective teachers. Thus CHARGE offers a viable contrast to passive methods of teacher preparation.

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CHARGE - A Simulation Game Designed to Teach Group Member Roles to Prospective Teachers - FOUND TO BE EFFECTIVE

DR. ROBERTA T. ANDERSON[1]

INTRODUCTION

It is the contention of some that if teachers are to succeed in the participatory classroom environments still advocated, they must be trained to play several roles. An understanding of leadership roles as well as membership roles is necessary if educators expect to be effective communicators and facilitators of learning.

It has been assumed, by the author, that when teachers become comfortable in playing these several roles, they will be more ready to help students understand and play effectively their own roles. This assumption is not new. In a 1954, NEA journal article entitled, "More Learning Takes Place When Teachers and Students Understand the Various Roles in the Classroom Group," Kenneth Benne supported the same position.

Simulation as a training vehicle to teach group member roles was successfully used with seventy-two undergraduate students enrolled in professional education courses at the National College of Education in 1972. Activities included the development and analysis of a teacher education simulation game designed to teach a typology of small group member roles. A study was conducted to compare the cognitive effects of this technique with a lecture method that presented the same information. In addition, selected affective reactions were gathered from the participating students (Anderson, 1972).

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[1]Dr. Anderson is Director of National College of Education's Center for Advanced Studies in Education, Naperville, Illinois.

The content of the simulation game, CHARGE, and the lecture used in this study required the participants of both groups to become knowledgeable about small group member roles. The specific major categories and roles were selected from the original works of Benne and Sheats (1948) who identified certain functional roles as being vital to small group training and analysis.

Benne and Sheats' system for study of group process, originally advocated in 1948 and revived in 1969 with some modifications by Gorman, provided for group member roles to be studied by dividing them into three major categories:

I. Group Task Roles

Roles that contribute to the facilitation and coordination of group problem-solving activities.

II. Group Building and Maintenance Roles

Those activities that have for their purpose the building of group-centered attitudes and orientation among the members of a group or the maintenance and perpetuation of such group-centered behavior providing for cohesiveness of the group.

III. Individual or Non-Functional Roles

Attempts by "members" of a group to satisfy individual needs which are irrelevant to group task and non-oriented or negative-oriented to group building and maintenance.

These three major categories of "functional roles" are similar to factors that have been isolated in other studies (Gorman, 1969 and 1972; Borgatta and Growther, 1965; and Bales, 1950). The Benne and Sheats' role categories were specifically designated to train observers in the identification of group member roles. These categories have not received as much attention as other role categories by social scientists and therefore have not been altered or modified as have the works of Bales (1950). Benne and Sheats (1948) dealt with the role played rather than with a prescribed set of interactions between roles as does Bales.

The Bales (1950) interaction analysis, used extensively for different types of research, gets at the interpersonal dimensions of each player and his relationship with others. Bales' categories are numerous and require total concentration by an observer to make distinctions between the behaviors exhibited. These categories were found to be far too numerous to provide a framework for the simulation game, CHARGE, in which each player was expected to not only identify the roles played by others but was also expected to act out a given role during the game (Anderson, 1972).

The Anderson (1972) study included only two of the Major Categories advocated by Benne and Sheats. They were: 1) Group Building and Maintenance Roles, and 2) "Individual" Roles.

GAME CONSTRUCTION AND DESIGN

The construction of the researchable simulation game, CHARGE, was such that all elements of the game were randomized and recorded for statistical analysis. It was designed using guidelines developed by Crawford and Twelker (1969) and "A Checklist to be Used When Designing Contextual Response Simulation," published by Teaching Research, Monmouth, Oregon (Twelker, ed., 1968). The game, CHARGE, provided the playing participants with a perspective of "total group process." Attention was given during the play of the game to the identification, analysis and practice of leader and member roles, which are seen as correlative aspects of overall group growth and productivity (Benne and Sheats, 1948).

The game players operated in a context of group interaction. Subgroups of six college undergraduates each used sets of materials to determine their subgroup actions during the play of the game. The Game packets included Identification Numbers for each player in the subgroup, Role Assignment Cards,

Topic Cards, Situation Cards, Role Description Sheets, and Score Cards for both Phase I and Phase II respectively. (Examples of game components can be found in Appendix A.)

The decision as to the size of the game's subgroups (6) was based on studies reported by Hare (1962). He determined the most effective group sizes for role playing activities and identification of roles played were six or seven in number.

The game design afforded an opportunity for each game participant to role play each of four "group building and maintenance" roles and each of two "individual" roles. Guidelines for the selection of particular group member roles for the game came from Benne and Sheats' (1948) role requirements for "young" groups. Of the roles which were indicated as necessary to build and maintain group interaction four were selected. They were: Compromiser, Encourager, Harmonizer and Gatekeeper or Expediter (Anderson, 1972). The Benne and Sheats studies further suggested that a ratio of one individual role to every two or three "group building and maintenance" roles is necessary to promote group evaluation. The two "individual" roles selected from the eight in the Benne and Sheats classification system were those roles which have received recognition in other studies on small groups (Bales, 1970; Grambs, 1968; and Borgatta and Crowther, 1965). The "individual" roles included in the game were: Aggressor and Recognition-seeker (Anderson, 1972).

The order and assignment of roles for each subgroup and its six players were randomly determined for each round of play. The randomization method used provided for each subgroup's sequence of play to be totally unlike that of any other subgroup.

The group tasks selected for use in this game were predetermined by the

author to control the task variable. The determination was accomplished through several trials of the author's original game "Self Perception" over a period of three years (Anderson, 1968). Those tasks designated as Topics to be discussed and Situations to be resolved in the original game were recorded and those receiving the highest percentage of favorable reactions from the college undergraduate participants were included in the game, CHARGE.

The order in which the Topic Cards and Situation Cards appear in the game for each subgroup was also randomized for each phase. To keep the element of chance the same for all groups playing the game, Topic Cards were used in Phase I and Situation Cards were used in Phase II.

Play of the game occurred in two, three round phases. Phase I included three rounds of play in which each subgroup's participants played randomly assigned roles as they discussed randomly assigned topics. (Examples of particular Topic Cards can be found in Appendix A.) Phase II included three rounds of play during which the game participants played randomly assigned group member roles as they discussed action to be taken in order to solve an assigned problem. (Examples of particular Situation Cards can be found in Appendix A.)

Each round of play was scored and discussed briefly by the subgroup participants before continuing to the next round of play.

GAME PLAY RECORDING SYSTEM

The simulation game data recording system, designed for use both during and at the conclusion of the game, recorded: 1) participants' scores as observers of roles played (accuracy of identification of roles during each round of play); 2) participants' scores as players of roles (skill in role playing); 3) game phase scores for each participant; and 4) total game scores for each

participant. The game score information was acquired from two separate sheets with Phase I on one and Phase II on another. This afforded the researcher the opportunity to collect each participant's score sheet at the conclusion of each phase of the game (Anderson, 1972). This also prevented the scorer from biasing his second score as a result of viewing the first.

The format of the game score cards used in the study was developed through several trial uses also over a period of three years. Suggestions from past game participants provided guidelines for these revisions. (An example of the Score Cards used in Phase I and II of the simulation game, CHARGE, can be found in Appendix A.)

The game score cards provided the bulk of the quantitative data used to analyze the actions and reactions of participants in the simulation game, CHARGE.

COMPARISON LECTURE

The lecture developed for comparison contained the same factual content found in the simulation game. Equal time and emphasis were devoted to each of the roles played during the simulation game. The Benne and Sheats (1948) role descriptions used in the game were paraphrased and illustrations of each included in the lecture. (A copy of the actual notes used in presenting the lecture can be found on pages 107-116 of the author's original investigation.)

A brief discussion following the lecture gave the students an opportunity to voice their reactions to the lecture content and pose any questions they had in regard to the role descriptions. (Information brought out in this discussion and any additional points made here were recorded (Anderson, 1972).

The length of the lecture and discussion was timed to assure comparable exposure to content as that presented in the simulation game, CHARGE.

INSTRUMENT CONSTRUCTION

Personal information questionnaires, sociometric devices, and post-experimental reaction sheets (cognitive and affective in nature) were also developed to assist in the analysis and comparison of the game's effectiveness.

Personal Information Questionnaire

The Personal Information Questionnaire developed for this study contained requests for information on the age, sex, grade level status, area of teaching concentration, teaching grade preference, student teaching experience, professional courses taken, and prior experiences in role playing, small group activities, and simulation activities of each participant in the experiment. (A complete set of informational forms used with the experimental and contrast groups, respectively, can be found in Appendix B.) The information obtained from the questionnaire was used in the analysis of relationships between participants' characteristics and their game and test performance.

The Sociometric Device (an adaptation from Gorman, 1969) was designed to obtain information about the target population's familiarity with each other. Using a class list provided by the examiner, students were asked to indicate those students in the class (prior to the experiment) who they "knew well," "knew slightly," or "knew not at all." (See Appendix for copies of the actual device used.)

The information acquired from the sociometric device from the experimental group was used to determine how each subgroup participant ranked the others in that particular subgroup. This information was used in a comparative analysis of the acquaintanceship factor of the game participants (Anderson,1972).

Affective and Cognitive Instuments

The Reaction Sheet-Affective was a device constructed to obtain both quantitative and subjective data. It was designed to assess student reactions to the simulation game experience. This was used only with the students participating in the experimental group (simulation game exercise). Item I was designed to solicit soft data in regard to the student's feelings concerning his simulation game experience. (See Appendix C.)

Responses to Items II_1 through II_{10} were arranged on a four point positive/negative scale with no neutral position provided, forcing the student to commit himself to a positive or negative reaction, therefore assuring usable quantitative data (Kerlinger, 1964). The content validity of these items was arrived at through the use of a table of specifications, attempting to balance the desired objectives and content proposed (Gronlund, 1971). Items II_1 through II_{10} also contained opportunities for the students to "comment if desired" to qualify their responses and provide the researcher with additional subjective data.

Item III also provided subjective data from the students in the form of requests for their opinion on what they thought they had learned during the simulation game experience. (A copy of the Reaction Sheet-Affective is found in Appendix C.)

The Reaction Sheet-Cognitive was a device designed to assess student knowledge about group member roles. This device was constructed to give a measure of the student's ability to recall (immediately) information just presented, as well as to indicate retention of learned information when used as a delayed measure. The device was also designed to give information about students' ability to make inferences and transfer their learnings to varied situations.

The actual construction of the test was accomplished through a series of steps or levels of refinement.

First--Objectives, content to be covered, and a table of specifications were prepared to serve as guides in the preparation of the cognitive test constructed to measure comparative differences between the simulation game and the lecture. Gronlund (1971) and Thorndike and Hagen (1969) were used as references in the completion of these devices.

A table of specifications for presenting a typology of group member roles was constructed and used as a blueprint to assist in the completion of a finished product which could measure the learning outcomes.

Second--The content of each item was obtained from actual descriptions, scripts and dialogues used in research by Benne and Sheats (1948); Gorman (1969); and Borgatta and Crowther (1965).

Items 1, 2, 4, 6, 8, 9 and 11 of the test were constructed using descriptive phrases for each of the roles selected from the works of Benne and Sheats (1948). Items 3, 5, 7, 10, 12, 13 and 14 contained partial scripts and role descriptions found in the works of Gorman (1969). Items 15, 16, 17 and 18 were taken from scored scripts of Borgatta and Crowther's (1965) B.S. System.

Using these sources to determine the "correct" responses eliminated the need to use a consensual procedure as a means of providing justification for designating responses as correct (Gronlund, 1971).

Third--The design of the test was assayed to afford the best means of obtaining the cognitive information desired (Gronlund, 1968 and 1971; Thorndike and Hagen, 1969; and Tyler, 1971). The multiple choice format was adopted. Items 1 through 10 were identification recall items. Items 11, 13 and 16 were designated as categorizing items. Items 14, 17 and 18 were inference items.

Items 12_a through 12_f and 15_a through 15_d were designated as transfer items. Each of the above items was developed and then randomly assigned to the test design (Anderson, 1972).

Though there are only eighteen numbered items, the test in fact contains forty-two individual responses. To estimate the reliability coefficient for the internal consistency of the cognitive test, the Split-Half method of analysis (Gronlund, 1971, pp. 106-109) was performed on the first administration of the cognitive test to the entire group (72) which produced a reliability coefficient of .47. This relatively low coefficient was not surprising. Since the test was designed to measure recall, categorizing, inference and transfer one could expect small coefficients. An additional check was made using the Kuder Richardson formula 20, which produced a reliability coefficient of .50. An attempt to protect the validity of the test was made by selecting only those items which had already been researched by others. (A copy of the Reaction Sheet-Cognitive can be found in Appendix C.)

TARGET POPULATION

The target population which included seventy-two undergraduates at the junior/senior level were enrolled in professional education courses at National College of Education, Evanston, Illinois. These courses consisted of daily five hour blocks of time devoted to general methods and laboratory experience for students preparing for their full day, eleven week student teaching experience.

The students involved in the study had ample exposure to behavior labeling attributed to the behavioral scientists but had not been exposed in their class work to the specific small group member role categories identified in the game or lecture (Anderson, 1972).

PROCEDURES USED IN THE STUDY

The experimental treatments and initial testing situations occurred on four separate days in the beginning of the 1971 fall term. Prior to the experimental treatment, the seventy-two college students involved in the study were administered the Personal Information Questionnaire and the Sociometic Device. Both the questionnaire and the sociometric device were administered by the instructional staff of the Professional Term classes involved to assure no linkage with the experiments which were to follow. They were administered in a physical setting similar to the one pictured in Figure 1. (See Appendix D.)

Treatment for the fifty-four college students assigned to the experimental group (nine subgroups of six each) consisted of playing the simulation game, CHARGE. The remaining eighteen students were exposed to the lecture. Actual involvement in the game activities was divided between orientation to rules and object of the game and the timed playing of each of the six rounds. Participants were randomly assigned to groups and were seated in groups arranged as pictured in Figure 2. (See Appendix D.)

At the conclusion of the game, all game materials were collected and the Reaction Sheet-Cognitive was administered to all participants. As game participants completed the cognitive measure they were asked to complete the Reaction Sheet-Affective.

Treatment for the eighteen college students assigned to the contrast group consisted of a lecture containing information found in the simulation game, CHARGE, followed by a discussion of the lecture content. Immediately following the lecture and discussion, the contrast group was administered the cognitive part of the Reaction Sheet.

One month after the treatments, the study population was once again administered the cognitive portion of the Reaction Sheet. The experimental group was tested on a Friday morning and the contrast group on the following Monday.

RESEARCH DESIGN

The research design used in this study was an adaptation from Campbell and Stanley's (1963) "Post-Test--Only Control Group Design" (pp. 25-27). Table I provides a graphic picture of the experimental design adaptation and procedures employed. (See Appendix E.)

Throughout the study every effort was made to control such variables as: time, participants' backgrounds in content of game and/or lecture information, formal educational experience, leadership within the total experiment (the game director, lecturer, and test administrator were the same person), size of each subgroup division within the larger experimental group, chance factors (by randomization of all elements of the game), media used, and the physical environment of treatment and testing situations. In so doing, it was possible to make generalizations having fewer limitations (Anderson, 1972).

In order to analyze the actual play of the simulation game, CHARGE, the following general hypotheses pertaining to the experimental (game) group were postulated (Anderson, 1972, pp. 5 and 6):

1. Simulation game participant's skill in identification of group member roles will improve from game round one through game round six.

2. Simulation game participants will recall, for a period of one month, the information learned about group member roles.

3. Simulation game participants' characteristics and backgrounds affect their performance in the simulated environment.

4. Simulation game participants will exhibit favorable attitudes toward the simulation game experience.

In order to compare the the simulation game with the lecture additional hypotheses were postulated: (Anderson, 1972, p. 6)

5. Simulation game participants' (experimental group) immediate cognitive scores will exceed those of the lecture group (contrast group).

6. Simulation game participants will be better able to retain for one month the information gained about group member roles than will those of the lecture method group.

7. Simulation game participants will be better able to assess the tone and/or mood of a particular group's interaction than will the participants in the lecture group.

STATISTICAL TREATMENT AND FINDINGS

The statistical treatment employed on each of the hypotheses and the resultant findings follows:

Hypotheses #1 - Empirical data were collected using the game score cards. Round, phase and end of game scores were acquired by giving a score of "1" to each correct response and "0" to an incorrect response. In this manner individual scores were obtained through summations of the "1" scores. These scores were then placed in a 54 subject x 6 treatment matrix and analyzed using a one-factor repeated-measure analyses variance design (Bruning and Kintz, 1968, pp. 43-47). In addition, subgroup cumulative scores were also obtained and compared (Anderson, 1972).

The resultant F ratio of 4.37 was found to be significant at the .001 level as reported in Table 2 indicating a mean difference in performance from round one through round six. When noting the reported mean by rounds in Table 3 one can discern that this change was positive in nature. Table 4 contains the data showing that game participants performed equally well in both phases of the simulation game, CHARGE. (See Appendix E for Tables 2, 3 and 4.)

Hypothesis #2 - Empirical data were collected via the Reaction Sheet-Cognitive. All responses for the immediate and delayed Reaction Sheet-Cognitive (1=accurate responses, 0=inaccurate responses) were summed and averaged. Items 1-10, 12 and 15 designed specifically to test recall of roles taught in the game (20 responses in all) were also summed and averaged. t tests for dependent means were conducted to compare the differences in average values of immediate and delayed responses (Anderson, 1972).

A t of 1.52 was obtained when all game participants' test and retest scores on the cognitive measure were compared. This non-significant t at the .10 level indicated that no appreciable loss or gain in knowledge occurred during the one month time lapse between test and retest situations. What difference that did occur was positive in nature favoring the retest situation.

A significant t of 4.04 was obtained when analyzing those 20 responses specifically dealing with recall. The difference was positive in favor of the retest situation which indicates a gain in accuracy in recall of the roles played.

Hypothesis #3 - Empirical data were collected from the National College of Education Student Information Data Bank, the Personal Information Questionnaire, Sociometric Device and Game Score Cards to determine if there was any relationship between game performance and the game player's characteristics.

Correlations and frequency distributions were computed to compare high and low scoring game players' characteristics, academic and experiential backgrounds and their sociometric pictures with their game performance (Anderson, 1972).

A correlation coefficient of .62 was obtained when comparing high achievers with those scoring high in game performance. The characteristics

of age stood out in that no participant over the age of twenty-one was among those scoring in the top twenty-five percent of game performance. This age range represented twenty-seven percent of the total game population.

It was further noted that previous experience in role playing, small group activities, and simulation experience had equal effect on those who scored in each game performance level (top 25%, middle 50% and bottom 25%).

Hypothesis #4. Empirical data were collected using the Reaction Sheet-Affective to show whether the game participants found the game experience a favorable one.

To test the fourth hypothesis, responses II_1 through II_{10} were weighed 1 through 5 (1=most negative and 5=most positive) and tabulated. A response by response analysis as well as a total response analysis was made to determine the effects of the simulation experience on the experimental group.

The data revealed that 86.85 percent of the participants responded generally favorable to the simulation game experience while 13.15 percent felt otherwise. Of the 13.15 percent 12.04 percent were slightly critical and 1.11 percent were very critical of their experience. The respondents indicated that concepts presented in a simulation setting were thought to be more meaninful (a mean score of 3.6 - nighest being 4 - on Item II_6 of Reaction Sheet-Affective).

Those hypotheses relating to the comparison of the simulation game and the lecture are presented in the same format as above.

Hypothesis #5. Empirical data collected from the Reaction Sheet-Cognitive were compared by computing a t statistic using independent means with unequal n's to show whether the game participants were able to recall immediately a larger percentage of group member roles than were the lecture group (Anderson, 1972).

A t of 3.33 was derived which was significant at the .005 level. The difference between means was 2.96 as reported in Table 5 which lead to the conclusion that there was a significant positive difference in immediate cognitive test results in favor of the game participants. (See Appendix E for Table 5.)

Hypothesis #6. Empirical data collected from delayed Reaction Sheet-Cognitive for both groups were compared to determine if the game participants retained over a period of one month, a greater degree of knowledge about group member roles than did the lecture group.

A t statistic was computed on the delayed cognitive measure using dependent means with unequal n's. A significant t of 2.26 was obtained indicating a difference in the scores of the two groups. The 2.50 difference between means as reported in Table 5 was positive in nature and was in favor of the game participants. (See Appendix E for Table 5.)

Because this difference could have been due to the test rather than the treatment, an analysis of variance was computed between the lecture group and the game group using both immediate and delayed cognitive measures. The resultant F ratio of 12.24 was significant at the .001 level. The significant difference was in favor of the game group.

Hypothesis #7. Empirical data collected from Items 11, 13, 14, 16, 17 and 18 of the Reaction Sheet-Cognitive (22 responses in total) was compared to determine which group (experimental or contrast) was better able to assess the tone of a particular group interaction (Anderson, 1972).

The mean difference for selected items between the immediate and delayed cognitive measures was -.59 indicating a slight loss in accuracy in identifying mood and/or tone of small group interactions. Both of the t statistics computed

on each of the groups (game participants 1.45 and lecture group .08) indicated there was no difference between test/retest situation for either group. What ever accuracy they had exhibited was maintained.

Table 6 provides a summary of the type of empirical data collected on each participant in the study. (See Appendix E for Table 6.)

The source of attitudinal data collected was obtained from: 1) personal observations by the investigator, recorded during process of the simulation game and immediately following the lecture; 2) student comments obtained from the Reaction Sheet-Affective; and 3) informal discussions with randomly selected students and Term I and II National College of Education faculty members.

The game participants' zealous attitude toward the simulation game was made most apparent to the investigator. The students' comments showed genuine interest in seeking ways to improve future small group experience.

Repeated references were made by game participants to a gain in self-knowledge and in the function of others in small-group settings. They attributed this to the playing of the simulation game, CHARGE (Anderson, 1972).

CONCLUSIONS

The simulation game, CHARGE, administered as prescribed, was found to be an effective device to teach group member roles to prospective teachers.

Though the lecture method, to which the simulation game was compared, evidenced retention of the exhibited knowledge of group member roles: that knowledge was not as great as that revealed by the simulation game participants. Thus the game, CHARGE, was a more effective method in teaching those group member roles presented.

The simulation game participants gained, as play progressed, in their skill to identify group member roles. The attitudinal data collected also provided similar information in the form of direct comments taken from game participants both orally and in writing. In addition, nearly all the participants indicated that the game experience had been interesting, enjoyable and worthwhile (Anderson, 1972.)

This study provides further evidence that a teacher education simulation game, properly conducted and recorded, with variables appropriately controlled, can contribute significantly to participants' gain in competencies Through active participation in a non-threatening, involving and enjoyable learning environment, with opportunity for immediate feedback, participants gained in skill of role identification and insight into how small groups function.

Thus the simulation game, CHARGE, offers a viable contrast to passive methods of teacher preparation and is thought to be worthy of consideration as a significant contribution to improved methods of teacher preparation.

REFERENCES

Anderson, Roberta T. Development and Analysis of a Simulation Device for Teaching Group Member Roles to Prospective Teachers. Ann Arbor, Michigan: University Microfilms, 1972. (A Copyrighted Dissertation.)

_____. "Self-Perception" (A Simulation Game), Simulation Exercises and Games - Simulation in College Teaching. Teaching Research, A Division of Oregon State System of Higher Education, Monmouth, Oregon, August, 1968.

Bales, R. F. Interaction Process Analysis: A Method for the Study of Small Groups. Cambridge: Addison-Wesley, 1950.

_____. Personality and Interpersonal Behavior. New York: Holt, Rinehart and Winston, 1970.

Benne, K. D. "More Learning Takes Place When Teachers and Students Understand the Various Roles in the Classroom Group," NEA Journal, Washington, D.C., Vol. 43, No. 4, 1954.

_____, and P. Sheats. "Functional Roles of Group Members." Social Issues, Vol. 4, 1948.

Borgatta, E. F. and B. Crowther. A Workbook for the Study of Social Interaction Processes (Direct Observation Procedures in the Study of Individual and Group). Chicago: Rand McNally and Co., 1965.

Bruning, J. L. and B. L. Kintz. Computation Handbook of Statistics. Glenview: Scott, Foresman and Co., 1968.

Campbell, D. T. and J. C. Stanley. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally & Co., 1963.

Crawford, J. and P. Twelker. "The Design of Instructional Simulation," Instructional Simulation Newslatter. Monmouth, Oregon: Teaching Research, Oregon State System of Higher Education, Vol. 2, No. 1, February, 1969.

Gorman, A. H. Teachers and Learners: The Interactive Process of Education. Boston: Allyn and Bacon, 1969.

Grambs, J. D. Intergroup Education--Methods and Materials. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

Gronlund, N. E. Constructing Achievement Tests. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

_____. Measurement and Evaluation in Teaching, 2d ed. New York: Macmillan Company, 1971.

Hare, A. Paul. Handbook of Small Group Research. New York: Free Press of Glencoe, 1962.

Kerlinger, F. N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1964.

Lewis, W. W., J. M. Newell and J. Withall. "An Analysis of Classroom Patterns of Communication." Psychological Reports, Vol. 9, 1961.

Slater, P. E. "Role Differentiation in Small Groups." American Sociological Review, Vol. 20, 1953.

Thorndike, R. L. and E. Hagan. Measurement and Evaluation in Psychology and Education. 3d ed. New York: John Wiley and Sons, Inc., 1969.

Twelker, P. (ed.). A Checklist to be Used When Designing Contextual Response Simulations. Monmouth, Oregon: Teaching Research, Oregon State System of Higher Education, July, 1968. (7 pp. Mimeo)

Tyler, L. E. Tests and Measurements. 2d ed. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971.

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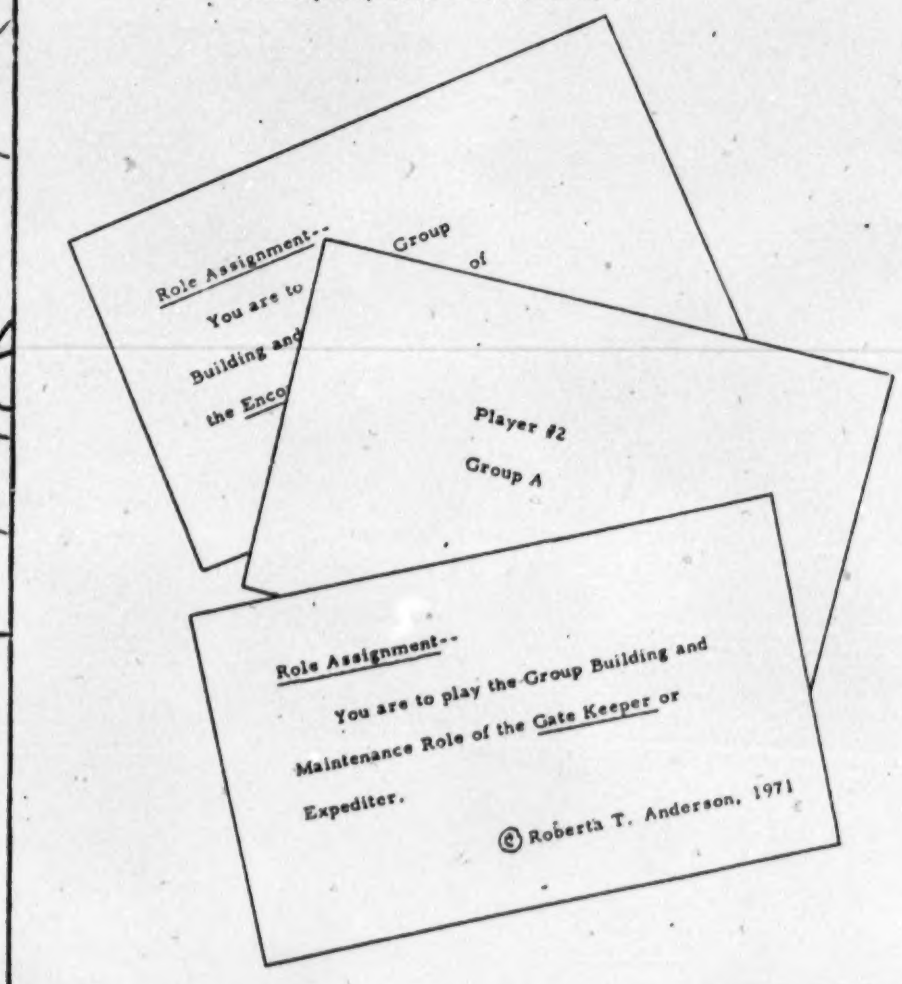
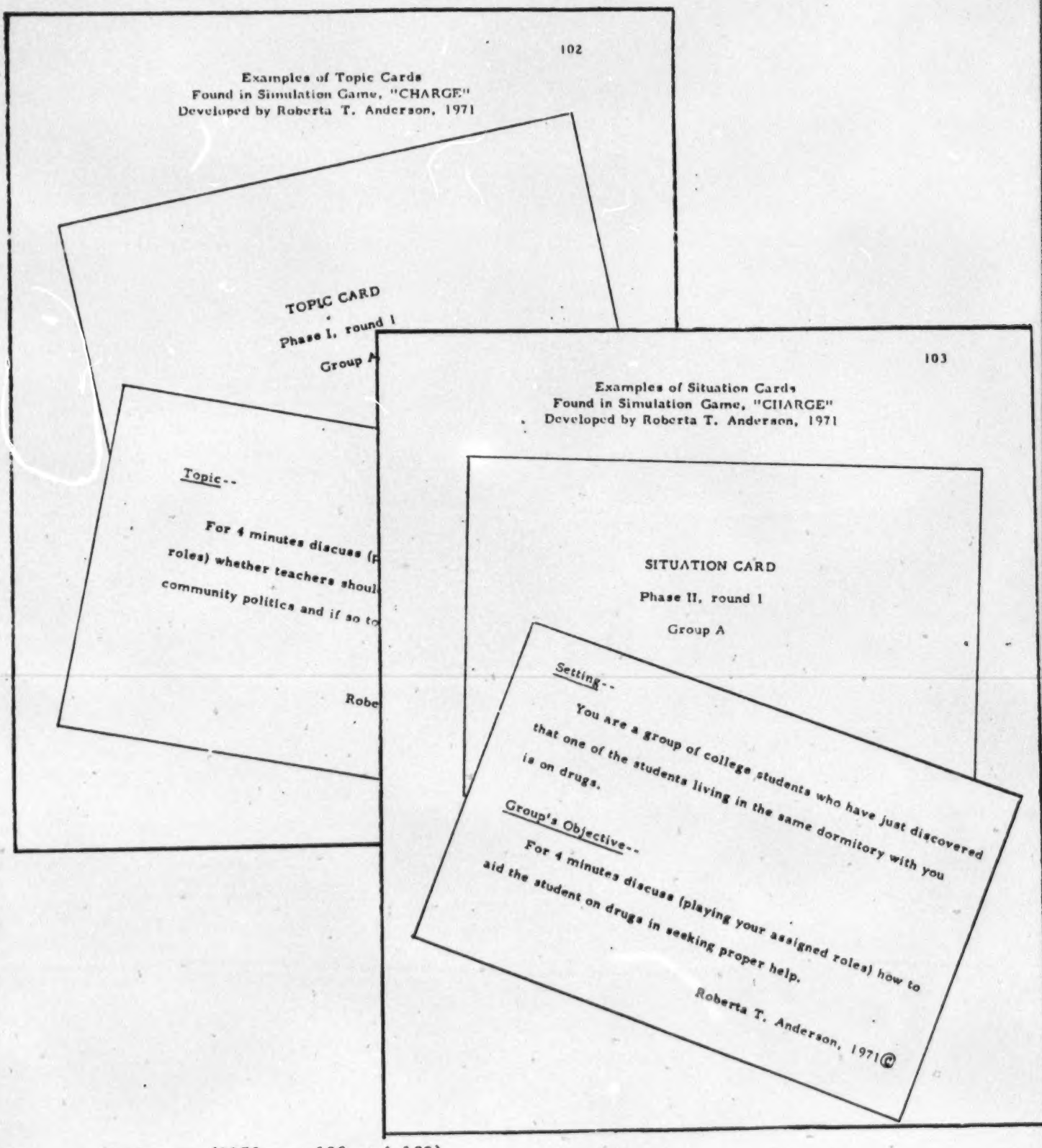
Identification Numbers
for
Simulation Game, "CHARGE"
Developed by Roberta T. Anderson, 1971

101

Examples of Role Assignment Cards
Found in Simulation Game, "CHARGE"
Developed by Roberta T. Anderson, 1971



*Anderson (1972; pp 99 and 101)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Examples of Topic Cards
Found in Simulation Game, "CHARGE"
Developed by Roberta T. Anderson, 1971
TOPIC CARD
Phase I, round 1
Group A
Topic--
For 4 minutes discuss (p
roles) whether teachers shoul
community politics and if so to
Robe
103
Examples of Situation Cards
Found in Simulation Game, "CHARGE"
Developed by Roberta T. Anderson, 1971
SITUATION CARD
Phase II, round 1
Group A
Setting--
You are a group of college students who have just discovered that one of the students living in the same dormitory with you is on drugs.
Group's Objective--
For 4 minutes discuss (playing your assigned roles) how to aid the student on drugs in seeking proper help.
Roberta T. Anderson, 1971©

*Anderson (1972: pp 102 and 103)

APPENDIX A* (Cont.)

GROUP BUILDING AND MAINTENANCE ROLES

The Encourager praises, agrees with and accepts the contribution of others. He indicates warmth and solidarity in his attitude toward other group members, offers commendation and praise and in various ways indicates understanding and acceptance of other points of view, ideas and suggestions.

The Harmonizer mediates the differences between other members, attempts to reconcile disagreements, relieves tension in conflict situations through jesting or pouring oil on the troubled waters, etc.

The Compromiser operates from within a conflict in which his idea or position is involved. He may offer compromise by yielding status, admitting his error, by disciplining himself to maintain group harmony, or by "coming half-way" in moving along with the group.

The Gate-keeper and Expediter attempts to keep communication channels open by encouraging or facilitating the participation of others ("We haven't got the ideas of Mr. X yet," etc.) or by proposing regulation of the flow of communication ("why don't we limit the length of our contributions so that everyone will have a chance to contribute?" etc.).

"INDIVIDUAL" ROLES

The Aggressor may work in many ways--deflating the status of others, expressing disapproval of the values, acts or feelings of others, attacking the group or the problem it is working on, joking aggressively, showing envy toward another's contribution by trying to take credit for it, etc.

The Recognition-seeker works in various ways to call attention to himself, whether through boasting, reporting on personal achie... acting in unusual ways, struggling to prevent his being placed in an... ...tion, etc.

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PHASE II

PHASE I

SIMULATION GAME SCORE CARD FOR _____ (Student's Name)

Player's group Identification Letter _____ (A through J)

Player's Game Identification number _____ (1 through 6)

Scoring directions

Record which role you think was played by each player at the conclusion of each round of play. Be sure to tally your correct responses at the end of each round and at the conclusion of this Phase.

PHASE I, ROUND 1

Player's Number	Role played by each group member including yourself.
1	
2	
3	
4	
5	
6	

No. identified correctly _____

PHASE I, ROUND 2

Player's Number	Role played by each group member including yourself.
1	
2	
3	
4	
5	
6	

No. identified correctly _____

PHASE I, ROUND 3

Player's Number	Role played by each group member including yourself.
1	
2	
3	
4	
5	
6	

No. identified correctly _____

Total no. identified correctly in Phase I _____

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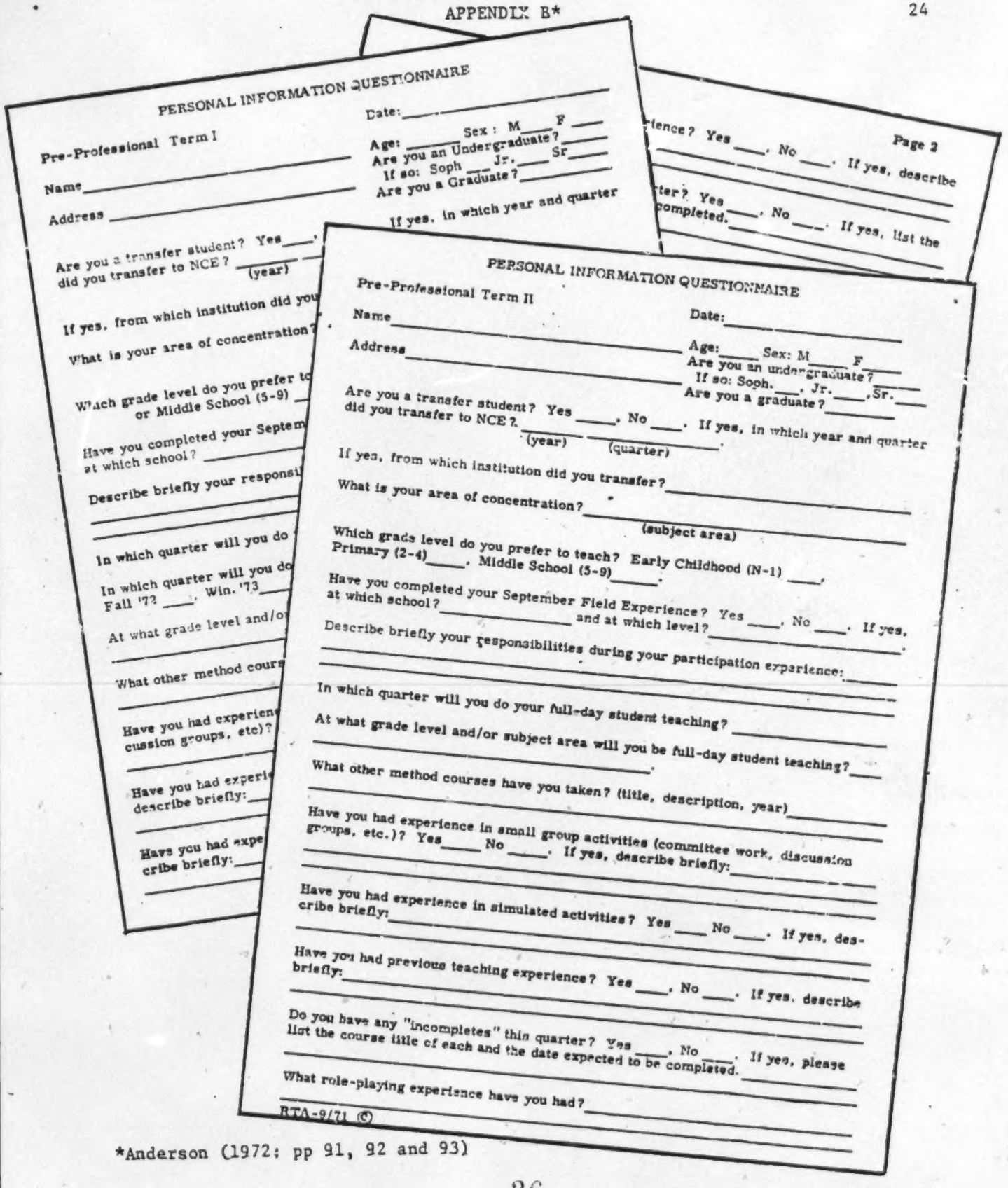
RIA

*Anderson (1972: pp 100, 104 and 105)

APPENDIX B*



PERSONAL INFORMATION QUESTIONNAIRE

Pre-Professional Term I

Name _____ Date: _____

Address _____ Age: _____ Sex: M ___ F ___

Are you an Undergraduate? ___

If so: Soph ___ Jr. ___ Sr ___

Are you a Graduate? _____

Are you a transfer student? Yes ___. No ___. If yes, in which year and quarter did you transfer to NCE? _____ (year) _____ (quarter).

If yes, from which institution did you

What is your area of concentration?

Which grade level do you prefer to
or Middle School (5-9) ___

Have you completed your Septem
at which school? _____

Describe briefly your responsi

In which quarter will you do

In which quarter will you do
Fall '72 ___. Win. '73 ___

At what grade level and/o

What other method cours

Have you had experien
cussion groups, etc)?

Have you had experi
describe briefly: ___

Have you had expe
cribe briefly: ___

Page 2

ience? Yes ___. No ___. If yes, describe

ter? Yes ___. No ___. If yes, list the
completed. _____

PERSONAL INFORMATION QUESTIONNAIRE

Pre-Professional Term II

Name _____ Date: _____

Address _____ Age: ____ Sex: M ____ F ____

Are you an undergraduate? ____

If so: Soph. ___, Jr. ___, Sr. ___

Are you a graduate? _____

Are you a transfer student? Yes ____. No ____. If yes, in which year and quarter did you transfer to NCE? _____ (year) _____ (quarter).

If yes, from which institution did you transfer? _____

What is your area of concentration? _____ (subject area)

Which grade level do you prefer to teach? Early Childhood (N-1) ___, Primary (2-4) ____. Middle School (5-9) ____.

Have you completed your September Field Experience? Yes ____. No ____. If yes, at which school? _____ and at which level? _____.

Describe briefly your responsibilities during your participation experience: _____

In which quarter will you do your full-day student teaching? _____

At what grade level and/or subject area will you be full-day student teaching? ____.

What other method courses have you taken? (title, description, year) _____

Have you had experience in small group activities (committee work, discussion groups, etc.)? Yes ____ No ____. If yes, describe briefly: _____

Have you had experience in simulated activities? Yes ____ No ____. If yes, describe briefly: _____

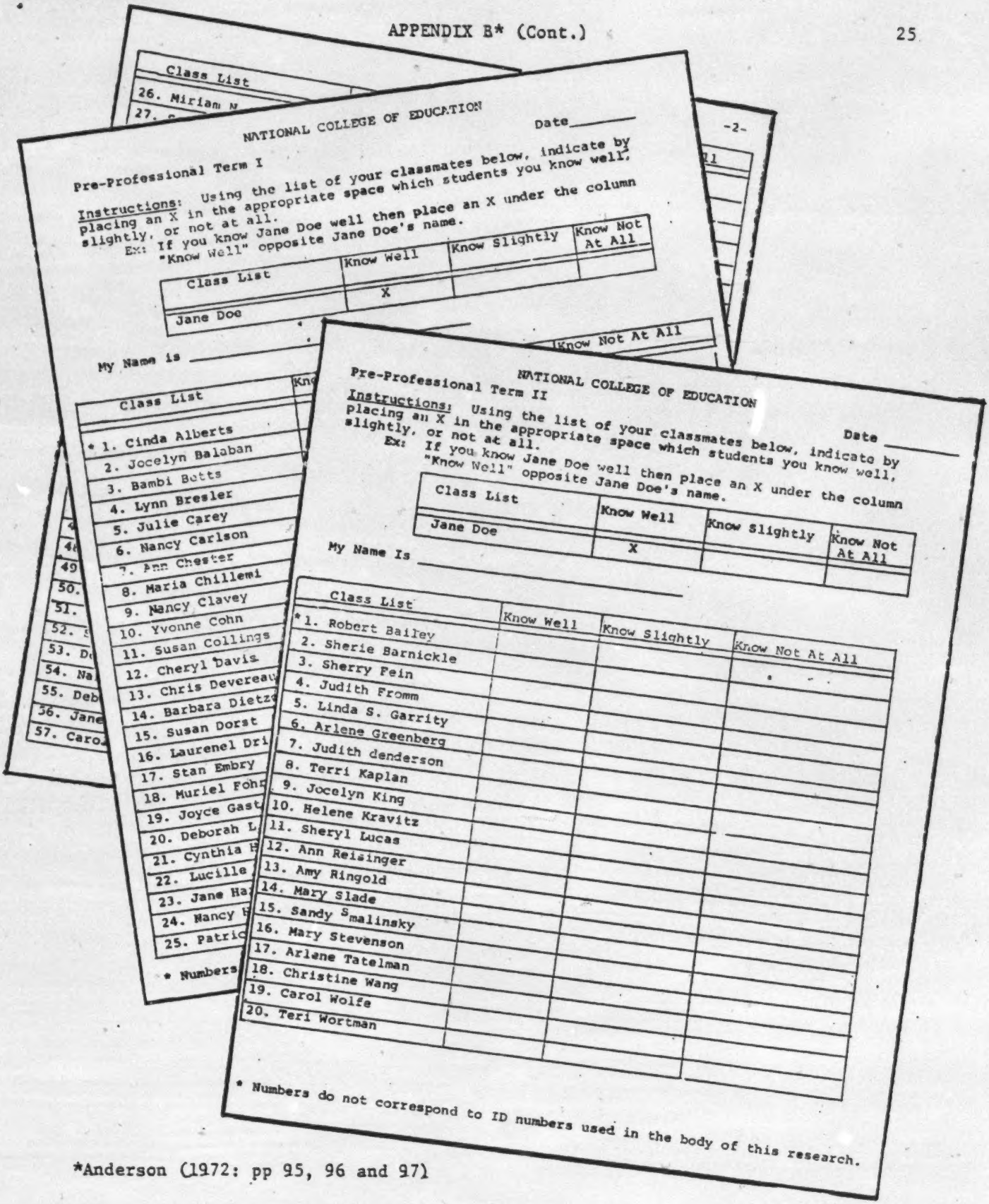
Have you had previous teaching experience? Yes ____. No ____. If yes, describe briefly: _____

Do you have any "incompletes" this quarter? Yes ____. No ____. If yes, please list the course title of each and the date expected to be completed. _____

What role-playing experience have you had? _____

RTA-9/71 ©

*Anderson (1972: pp 91, 92 and 93)



NATIONAL COLLEGE OF EDUCATION

Pre-Professional Term I

Date _____

Instructions: Using the list of your classmates below, indicate by placing an X in the appropriate space which students you know well, slightly, or not at all.

Ex: If you know Jane Doe well then place an X under the column "Know Well" opposite Jane Doe's name.

Class List	Know Well	Know Slightly	Know Not At All
Jane Doe	X		

My Name is _____

Class List	Know Well	Know Slightly	Know Not At All
* 1. Cinda Alberts			
2. Jocelyn Balaban			
3. Bambi Betts			
4. Lynn Bresler			
5. Julie Carey			
6. Nancy Carlson			
7. Ann Chester			
8. Maria Chillemi			
9. Nancy Clavey			
10. Yvonne Cohn			
11. Susan Collings			
12. Cheryl Davis			
13. Chris Devereaux			
14. Barbara Dietz			
15. Susan Dorst			
16. Laurenel Dri			
17. Stan Embry			
18. Muriel Fohr			
19. Joyce Gast			
20. Deborah L			
21. Cynthia H			
22. Lucille			
23. Jane Ha			
24. Nancy H			
25. Patric			

* Numbers

NATIONAL COLLEGE OF EDUCATION

Pre-Professional Term II

Date _____

Instructions: Using the list of your classmates below, indicate by placing an X in the appropriate space which students you know well, slightly, or not at all.

Ex: If you know Jane Doe well then place an X under the column "Know Well" opposite Jane Doe's name.

Class List	Know Well	Know Slightly	Know Not At All
Jane Doe	X		

My Name Is _____

Class List	Know Well	Know Slightly	Know Not At All
*1. Robert Bailey			
2. Sherie Barnickle			
3. Sherry Fein			
4. Judith Fromm			
5. Linda S. Garrity			
6. Arlene Greenberg			
7. Judith denderson			
8. Terri Kaplan			
9. Jocelyn King			
10. Helene Kravitz			
11. Sheryl Lucas			
12. Ann Reisinger			
13. Amy Ringold			
14. Mary Slade			
15. Sandy Smalinsky			
16. Mary Stevenson			
17. Arlene Tatelman			
18. Christine Wang			
19. Carol Wolfe			
20. Teri Wortman			

* Numbers do not correspond to ID numbers used in the body of this research.

*Anderson (1972: pp 95, 96 and 97)

APPENDIX C*

5. I feel that my experience in the simulation game will help me to identify the different roles people play in real life group settings.

Comment if desired:

___a. Very helpful
___b. Helpful
___c. Not particularly helpful
___d. Not helpful at all

6. The simulation game made the concepts of small group member roles more meaningful than if they had been presented in lectures.

Comment if desired:

___a. Much more meaningful
___b. More meaningful
___d. Less meaningful
___e. Much less meaningful

7. I would recommend this simula

___a. Strongly recommend
___b. Recommend
___c. Advise against
___d. Strongly advise ag

8. I enjoy interacting with c

___a. Very much so
___b. Somewhat
___c. Not particularly
___d. Not at all

9. The simulation game ex
life situations.

___a. Very much so
___b. Somewhat
___c. Not particul
___d. Not at all

10. The simulation game
and classmates in

___a. Very much
___b. Somewhat
___c. Not part
___d. Not at

III. List two or mor
more space is

RIA 8-3-71 ©

Date_____Pre-Prof. Term __I, __II. Student's Name_____

STUDENT REACTIONS TO THE SIMULATION GAME EXPERIENCE

This instrument is an attempt to determine your attitude toward the simulation game experience. Feel free to express your feelings toward the experience. This information will in no way affect your competency rating in the Ed. Block.

I. Please write a brief paragraph about how you feel concerning your simulation experience. If more space is needed use reverse side of page.

II. Please read the following statements about the simulation game and state your feelings about each statement by checking (✓) each statement below that expresses your sentiment. Check one and only one choice for each item.

1. I enjoyed playing the simulation game.

___a. Very much so
___b. Somewhat
___c. Not particularly
___d. Not at all

Comment if desired:

2. "Acting out" my assigned roles in the discussion of topics and problems in the simulation game made me feel like I was involved in life like situations.

___a. Very involved
___b. Involved
___c. Not particularly involved
___d. Not involved at all

Comment if desired:

3. The discussion accompanying each round of play was valuable in developing my skill to role play the different roles called for in the game.

___a. Very valuable
___b. Valuable
___c. Not particularly valuable
___d. Not valuable at all

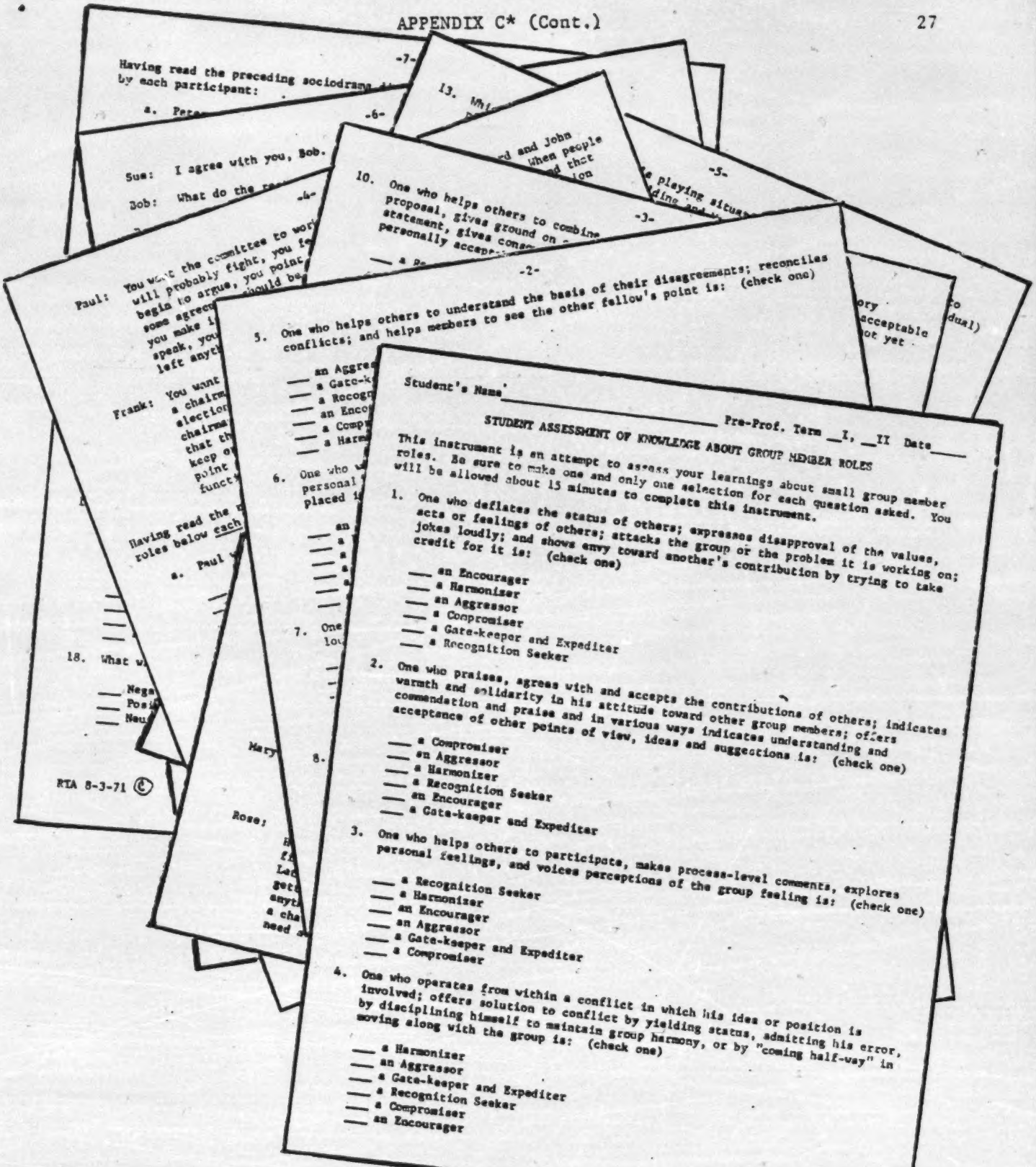
Comment if desired:

4. I believe that my experience in the simulation game has helped me develop an awareness as to how small groups function.

___a. Very helpful
___b. Helpful
___c. Not particularly helpful
___d. Not helpful at all

Comment if desired:

*Anderson (1972: pp 118 and 119)



Student's Name _____ Pre-Prof. Term __I, __II Date____

STUDENT ASSESSMENT OF KNOWLEDGE ABOUT GROUP MEMBER ROLES

This instrument is an attempt to assess your learnings about small group member roles. Be sure to make one and only one selection for each question asked. You will be allowed about 15 minutes to complete this instrument.

1. One who deflates the status of others; expresses disapproval of the values, acts or feelings of others; attacks the group or the problem it is working on; jokes loudly; and shows envy toward another's contribution by trying to take credit for it is: (check one)

___ an Encourager
___ a Harmonizer
___ an Aggressor
___ a Compromiser
___ a Gate-keeper and Expediter
___ a Recognition Seeker

2. One who praises, agrees with and accepts the contributions of others; indicates warmth and solidarity in his attitude toward other group members; offers commendation and praise and in various ways indicates understanding and acceptance of other points of view, ideas and suggestions is: (check one)

___ a Compromiser
___ an Aggressor
___ a Harmonizer
___ a Recognition Seeker
___ an Encourager
___ a Gate-keeper and Expediter

3. One who helps others to participate, makes process-level comments, explores personal feelings, and voices perceptions of the group feeling is: (check one)

___ a Recognition Seeker
___ a Harmonizer
___ an Encourager
___ an Aggressor
___ a Gate-keeper and Expediter
___ a Compromiser

4. One who operates from within a conflict in which his idea or position is involved; offers solution to conflict by yielding status, admitting his error, by disciplining himself to maintain group harmony, or by "coming half-way" in moving along with the group is: (check one)

___ a Harmonizer
___ an Aggressor
___ a Gate-keeper and Expediter
___ a Recognition Seeker
___ a Compromiser
___ an Encourager

*Anderson (1972: pp 122 through 128)

APPENDIX D*

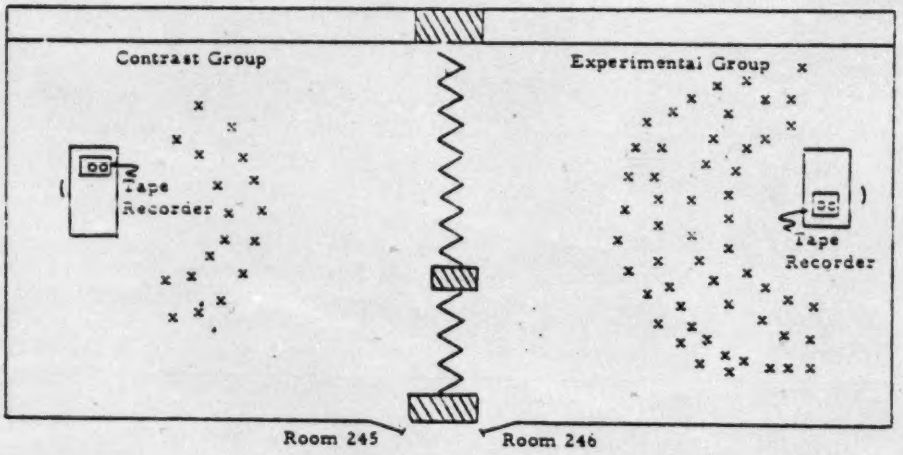


Figure 1

Physical Arrangement for Experimental and Contrast Group Activities

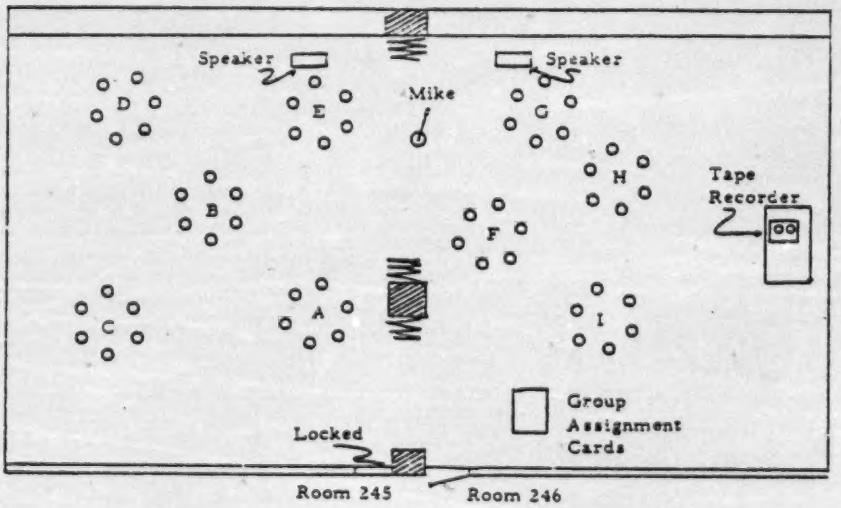


Figure 2

Physical Arrangement for Experimental Group's Treatment

*Anderson (1972: pp 31 and 34)

APPENDIX E

Table 1 **

Experimental Design and Procedures

Subjects College Undergraduates	N = 72	Treatment	Measures Employed*			
			Before	During	Immediately Following	One Month After
Experimental Group (In Room 240)	n_1 = 54 (9 groups of 6 each)	Simulation Device (All 6 Rounds Played)	Personal Information Questionnaire and Sociometric Device	Game Scoring Sessions 6 End of Round 2 End of Phase 1 End of Game	Cognitive and Affective Measures	Cognitive Criterion Measure
		34 minutes	25 minutes (not experimental time)	24 minutes	30 to 35 minutes	20 minutes
Contrast Group (In Room 243)	n_2 = 18	Lecture and Discussion on Role Theory including Typology of roles used in Simulation Device	Personal Information Questionnaire and Sociometric Device	None	Cognitive Criterion Measure	Cognitive Criterion Measure
		34 minutes (25 min. lecture 9 min. discus.)	25 minutes (not experimental time)		20 minutes	20 minutes

*Manner in which empirical data was collected

37

TABLE 2

ANALYSIS OF VARIANCE SUMMARY TABLE
BETWEEN 6 GAME ROUND SCORES

SOURCE OF VARIATION	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	F	PROBABILITY
Between Subjects	191.17	53			
Within Subjects	529.17	270			
Rounds	40.28	5	8.06	4.37	.001
Residual	488.89	265	1.84		
Total	721.17	323			

**Anderson (1972: p. 37)

TABLE 3

GAME PERFORMANCE MEAN SCORES BY ROUNDS

SOURCE	MEAN SCORE	AVERAGE MEAN SCORE
Game Round 1	3.80	
Game Round 2	4.33	
Game Round 3	4.69	4.27 (First 3 Rounds)
Game Round 4	4.19	
Game Round 5	3.98	
Game Round 6	4.78	4.31 (Last 3 Rounds)
Total Game Rounds	4.29	

TABLE 4

ANALYSIS OF VARIANCE SUMMARY TABLE
BETWEEN 2 GAME PHASES SCORES

SOURCE OF VARIATION	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	F	PROBABILITY
Between Subjects	575.94	53			
Within Subjects	493.50	54			
Phases	.45	1	.45	1.0	n.s.*
Residual	493.05	53	9.30		
Total	1069.44	107			

*n.s.=not significant

TABLE 5

SUMMARY TABLE FOR GAME VERSUS LECTURE ON COGNITIVE MEASURES

TESTING TIME	GROUP	NUMBER OF SUBJECTS	MEAN SCORE	DIFFERENCE	STANDARD ERROR OF DIFFERENCE	t	PROBABILITY
Immmediate							
	Experimental	54	28.07				
	Contrast	18	25.11				
	Total	72		+2.96	.89	3.33	.005
Delayed							
	Experimental	54	27.11				
	Contrast	18	24.61				
	Total	72		+2.50	1.11	2.26	.025

Table 6*

TYPE OF EMPIRICAL DATA COLLECTED

The Following Empirical Data was Collected on Each Individual in the Study

Type of Data	Experimental Group	Contrast Group
Progressive game scores by rounds (6)	x	
Progressive game scores by Phases (2)	x	
End of Game Score	x	
Post-Game Affective Criterion Measure (short term)	x	
Post-Treatment Cognitive Criterion Measure (short and long term)	x	x
Sex	x	x
Sociometric Measure	x	x
Academic Performance	x	x
Previous Role Playing Experience	x	x
Previous Small Group Experience	x	x
Previous Simulation Experience	x	x
Grade Level Teaching Preference	x	x

*Anderson (1972: p. 43, Table 2)